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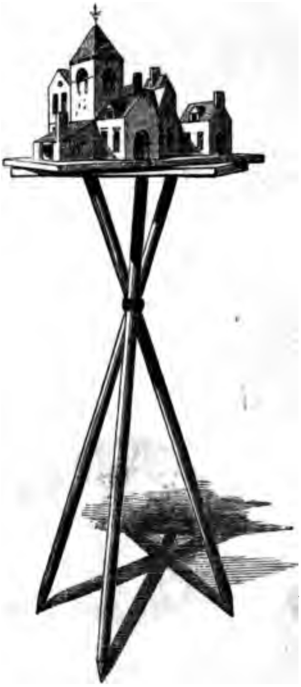
DRAWING MODELS,

AND THEIR USES.

BY J. D. HARDING.



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Artists' Colour Makers, by Special Appointment, to Her Majesty,
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1854.

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DRAWING MODELS,

AND THEIR USES.

Of the many requirements of the day on any subject which may form a part of education, a SYSTEM, which shall enable teachers to impart, and their pupils to acquire a sound knowledge of Art seems amongst the foremost.

The Drawing Models are presented, in conjunction with the "Lessons on Art," and the "Guide and Companion," to supply if possible that want, and the objects sought to be accomplished may be thus enumerated:

1st. To affiliate the study of Art with all other branches of education, and thus make it, as it may and ought to be, an indispensable coadjutor, with them, in the general advancement of the mind.

2nd. To afford additional facilities to the hand as well as additional knowledge to the mind, so that youth may be in all respects prepared for the many unseen wants which future years may disclose; and such only as can be met by a power derived from a knowledge and practice of Art.

3rd. To bring the mind into direct association with external Nature, and into a condition to appreciate her scenes of beauty, and consequently those transcripts of her which the genius of the Artist is ever recording, or as that genius may display itself in other departments; nor less the productions of those skilful artificers, who, on every hand, and in every fabric, present to us the fruits of cultivated tastes.

Perhaps the best reason which can be given for presenting these Models, in conjunction with the rest of the system of which they form an essential part, is, that they have been long tried, and found productive of valuable results.

Drawing models have been already introduced as an appropriate and effective means of communicating a knowledge of Art, or more especially of Perspective. For the most part, however, such as have hitherto been presented, either combine in fantastic forms, the copying of which is no very satisfactory prelude to drawing such forms as occur in Nature—mere *disjecta membra,* limited in their separate forms, and equally so in their combination; or they are often so minute as to be scarcely, if at all, more than mere toys.

Many years since, I foresaw that drawing from substantial objects must be concurrent with the study of artistic examples.

Without a knowledge of forms, and the power to draw them, the ability to express character is useless. As far as the study of perspective can lead to the drawing of forms truly, it may be considered indispensable; yet when studied only from the diagrams usually presented, it has been found not only repulsive to the generality of persons, but often unattainable. To render this study more attractive, and to make its acquisition more easy, as well as to surmount other difficulties in the study of Art, led to the construction of the "Drawing Models," which are simply *Cubic sections, and as these sections are the aliquot parts of the cube of which they are sections, they are in proportion to it, and to each other, and therefore have a mutual relation and dependence.* As a cube is the basis of all solid rectangular figures, this, and its sections combine into any variety of solid forms, of a kind such as we see adopted in architectural construction; hence, with these models, can be produced very great varieties of such forms as we are already familiar with; or may at any time see.

As the study of perspective, and of all solid forms commences with the cube, this figure may be selected from the models and others added to it, to form parallelopipeds of any proportion; or it may be combined with any of its sections, to form either a single figure of varied form, a cottage, or a complicated building of more architectural, and comprehensive pretensions. Now these latter may be approached gradually, commencing with the simple cube and separately adding piece by piece so as to lead the pupil step by step to a conclusion, from which, if set before him at first, in all its complexing terrors, he would have shrunk in hopeless despair. Difficulties at first alarming, and apparently insurmountable, are thus concealed by the teacher; or unseen by the pupil. Should any intricacy or embarrassment arise, it is easy to retrace the steps to where the difficulty, or misconception of the form occurred, by dismembering the subject so as to expose to view what, from being unseen, was not understood, and which could not therefore be truly drawn: thus, from the facility they afford of being combined or dissevered, the models provide every capacity with a suitable subject for its exercise, and with a ready solution for every difficulty. Moreover, the teacher leaves no doubt on the minds of his pupils of what he means by his instructions; nor any doubt on his own mind that they have been clearly understood.

Exactly such instruction is given in kind and degree, as every necessity may at any moment demand. Whatever be the ideas the teacher desires to convey, whatever variety of demand on the part of his pupils for assistance, or stimulus, he has in these Models the ready and appropriate means. By their use is acquired the ability to draw from Nature. Of this the pupils need no assurances from their teacher, because they have the evidence in their own convictions. They recognize in the models before them, if not always, *precisely* such forms as they are familiar with in the examples they have had placed before them, and such as they have seen in Nature; yet are they so perfectly analogous, as to leave no doubt in their minds, that having accomplished these from the Models, they would experience no new difficulty in drawing kindred forms from Nature, although the subjects there are on a larger scale.

More, however, must not be expected from the use of the Models than that use will yield. Whatever form their combination may assume, it is in any case but the skeleton—the dry bones—and however truly these combinations may be drawn, by the aid of a most complete knowledge of perspective, they will yet want all the nameless graces of feature, character, and expression, to give them vitality; without which, they may be true, but they will be uninteresting; they may satisfy the eye, but they will never affect the feelings; though they be true in form, they will be destitute of every engaging charm.

The "Guide and Companion," together with the "Lessons on Art," in conjunction with the Models, will develop the system I have long practised when giving instruction; and although the former is more especially intended for the teacher's use, yet it may be profitably appealed to by the pupils. The work alluded to will also contain instructions in perspective, by which the forms of the Models may be correctly delineated. The various methods already shown in the "Lessons on Art," by which the characteristic features and materials of buildings may be expressed, will enable the pupils to clothe them in all the garb of Nature; and being thus carried through every necessary and preparatory knowledge and exercise, they may, when going to Nature, learn to select her best examples. They will know how to make a closer acquaintance with an old and familiar friend, whose every aspect and feature they regard with increasing interest, because they see what they are prepared to recognize, interpret, and pourtray.

What I have done, others may do. Persuaded of this, I have been tempted to make public, by these Models, and in the "Guide and Companion," a system of teaching, which long experience, and earnest and careful study have proved to be useful. I have myself taught numbers of persons with whom I have never sat for an instant before Nature; but whose out-of-door drawings are not simply clever, they are truthful and masterly; manifesting an earnest love and comprehensive appreciation of Nature. They are indeed more like the productions of accomplished painters, than those of persons with whom the study of Art has not been the primary object.

To what I have already said, I may add the following advantages to be derived from the use of the Models:

1st. They enable the pupils to see solid objects of various forms from different points of view.

2nd. They can be combined in any degree, so as either to produce simple or complex forms. Picturesque and varied combinations are easily raised, as reference to the following cuts will show, and may be made suitable to any instruction it is the teacher's desire to illustrate or inculcate; who, in framing them, can represent the principles by which he has been guided, and can thus teach the pupils how to combine the models for themselves in a picturesque manner: thus they may be exactly adapted to the wants both of teacher and pupil.

3rd. The same subject is placed before a number of pupils; each views it differently, and draws it as he views it. The comparison of these drawings when completed, makes the practice of each pupil subservient to the instruction of the rest; they exercise a vigilant supervision of each other's efforts; they learn to detect even minute errors; to select the best drawings and the best views; to distinguish between delicate shades of difference which separate the excellent from the good; and so effectually, that if they exercise the like judgment when before Nature, they will at once, and without difficulty, hesitation, or failure, select the best points of view of any subject of an architectural character.

4th. Concurrently with the form, shade and shadow may be thoroughly learned.

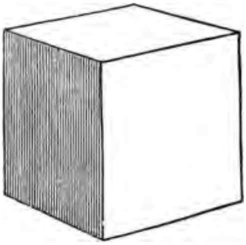
5th. In combining the Models to obtain examples for the exercise of the instructions which are given in the "Guide and Companion," and in the "Lessons on Art," many valuable hints may be gained for the exterior forms and arrangements of buildings adapted to many purposes. The forms of ground plans may also be learned in relation to superstructure. The teacher's time, and that of his pupils may be economized; numbers may be taught not only as easily, but more effectively, and more rapidly than individuals; and so completely, as to supersede the necessity for out-of-door instruction, which is generally unattainable, if not impracticable.

This may be proved by viewing the inevitable course of events when a lesson is proposed to be given actually from Nature. The first difficulty is to find a subject: This may be near (not a very frequent occurrence), or it may, by being distant, consume more time than can be spared to reach it; a day and hour must be appointed, consistent first with the teacher's convenience and engagements, secondly with the pupil's other studies, and thirdly with the hour of the day when the subject is best illuminated. When all these have been considered, and satisfactory arrangements made, there are other impediments to encounter: the weather may be unpropitious, too hot, cold, cloudy, or rainy; or it may have been recently wet, rendering the ground and air too damp to risk exposure to their influence. Even when none of all these obstacles have occurred, or when they can be faced, mitigated, or overcome, and the subject is at length reached, it can perhaps only be viewed, or rather drawn, from one point, and that not the most favourable for planting the sketching-seat. There are other views, perhaps better, but these cannot be got at: there is a hedge, a cabbage-garden, a wall, or some paling in the way; or perhaps the domicile of some grunting lady-mother and her squeaking progeny. The catalogue of grievances might go on to any length; the familiar items above enumerated are sufficient to show that lessons from Nature are nearly impracticable. This being the case, and the end of all the study and practice of Art being the attainment of the power to draw from Nature; it follows that some course should be adopted which shall furnish that power, so that whoever possesses it, shall be able to exercise it at any moment, whenever such subjects and circumstances present themselves as are most favourable.

These items, and more of discontent and disappointment, the teacher will see may be entirely avoided by the use of the Models in conjunction with the "Guide and Companion," and the fifth and sixth sections of the "Lessons on Art;" and I am quite sure that I only assert what will be constantly proved by others, that a pupil may be so thoroughly instructed as to what may be found in Nature, and how to represent it, as to experience less difficulty afterwards, when he has Nature before him, than when he had his "Lessons" and his Models.

FORMS OF THE MODELS.

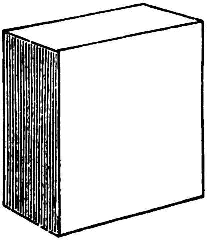
FIG. 1.



A CUBE.

This is the solid, of which all the other rectangular solids composing the group of Models are sections.

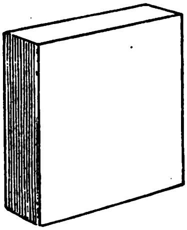
FIG. 2.



A ½ CUBE.

This is Fig. 1 divided in half. Two of these in solid contents make an entire cube.

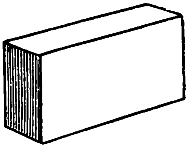
FIG. 3.



A ¼ CUBE.

This is the fourth part of the cube. Four of these together make in solid contents an entire cube.

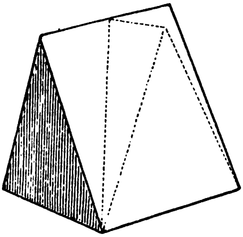
FIG. 4.



⅛ OF A CUBE.

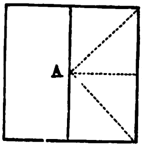
This is the eighth part of a cube. Eight of these in solid contents form an entire cube.

FIG. 5.



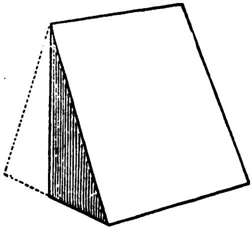
A GABLE.

This figure, with two half gables, as shown in the figure below, when combined form an entire cube. Besides the gables of this form, there are others among the Models which are flatter and only half their height. This figure would be represented by a plan thus



the line *AB* showing the direction of the ridge of the roof of Fig. 7.

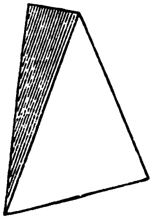
FIG. 6.



A ½ GABLE.

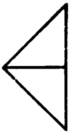
A half gable. Two of these figures placed together form a gable. This is shown by the dotted lines which represent another half gable so placed. These together, with Fig. 5, form a solid cube.

FIG. 7.



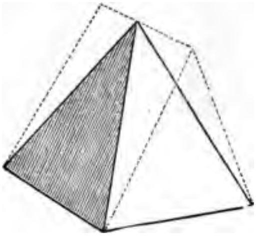
A ¾ GABLE.

This figure, which, for the sake of convenience, I denominate a three-quarter gable, is intended to be attached to the side of the Figure 5, so as to form two gables at right angles with each other, as is there shown by dotted lines. This figure would in plan be represented thus



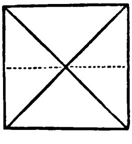
We may see this figure shown by the dotted lines as attached to Fig. 5.

FIG. 8.



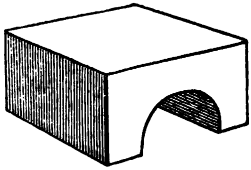
A PYRAMID.

Fig. 8 forms a pyramidal roof, such as is common to towers or buildings of an humbler character, such as barns, dove-cots, &c. When two figures like Fig. 7, are combined with this, as shown by the dotted lines, we have a gable like Fig. 5; and when two half-gables are also combined with these, the whole together make in solid contents an entire cube. In plan, this figure would be thus explained,



the dotted lines in each serving to show the ridge of the three-quarter gable, Fig. 7.

FIG. 9.



AN ARCH.

Two of these figures combined form a cube, and the circular hole so formed is occupied by two half-cylinders.

FIG. 10. A ¾ CYLINDER.

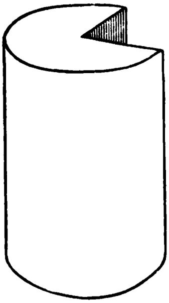
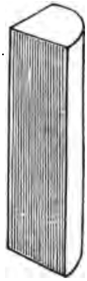
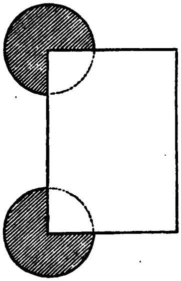


FIG. 11. A ¼ CYLINDER.



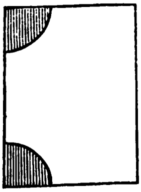
Three-quarters of a cylinder, and a quarter-cylinder. These are intended to be fitted together and form an entire cylinder, and when so used may be kept together by the thinnest ring of India-rubber. They are also intended to be used separately.

FIG. 12.



This figure shows by a plan how Fig. 10 is to be applied to exterior angles, and a specimen of its effect may be seen in Fig 22.

FIG. 13.



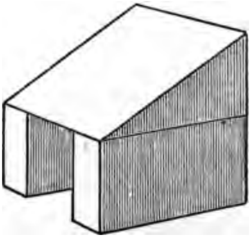
This figure shows by a plan how Fig. 11. is to be applied to interior angles, and is exhibited in Fig. 22 at *A*, and also in Plates 1, 2, 3, and 4. We come now to the simple combinations.

COMBINATION OF THE MODELS.

As the combinations of the various portions would not at once suggest themselves, I will endeavour to afford some insight into them, and their use: Although such combinations as I can here exhibit, fall infinitely short of that variety of which they are capable; yet there will, I hope, be found sufficient to lead the way to their practical and consistent employment, and to many of the familiar forms which they may be made to assume.

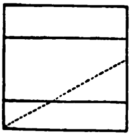
To this end, I must first exhibit the combinations of simple forms—and lastly, such as are more complicated.

FIG. 14.



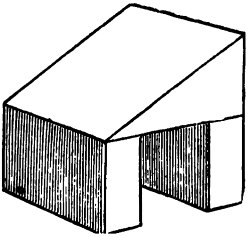
This, and the following, Fig. 15, exhibit a very common form of shed or out-house. It is composed of two figures like Fig. 4, and one of Fig. 6 placed on them.

FIG. 15.

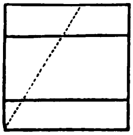


This figure is given to show how the one above is represented by a plan; the dotted line represents the roof and where its thickest end is to be placed.

FIG. 16.



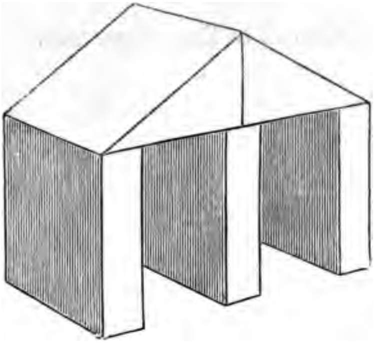
This figure is composed of the same pieces as the last, except that they are differently placed.



The plan of the above Figure.

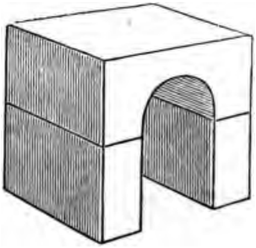
It is necessary that the plan of any Figure should be perfectly understood in order to comprehend the more intricate combinations as represented by the plans given on pages 25 and 27.

FIG. 17.

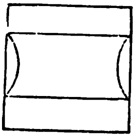


This also is a very common form of farm-shed, such as is used to shelter carts and waggons. This figure is formed of three pieces of Fig. 3, and two of Fig. 6.

FIG. 18.

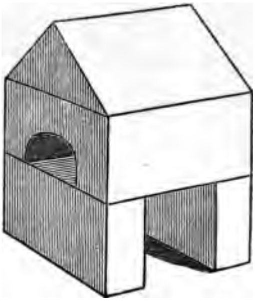


This Figure is formed by a combination of two pieces of Fig. 4 and one of Fig. 9 placed on them.

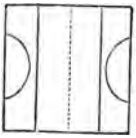


By a plan, it would be thus represented.

FIG. 19.

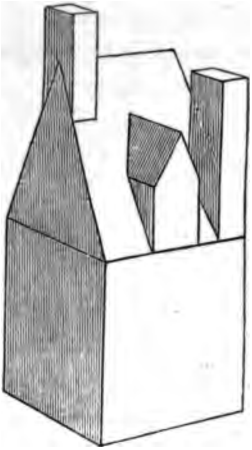


This figure is formed by placing the arch in a direction contrary to the last figure. It would be thus represented by a plan



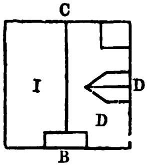
the dotted line showing the direction of the ridge of the roof.

FIG. 20.



This will at once be recognised as a very common farm-cottage. It will as easily be seen of what pieces it is composed.

Amongst the Models is a box equal to two cubes, placed side by side. This may be used in their stead, when such a form is wanted, and placed on its long side or on end. It contains windows and chimneys, adapted to the inclination of the two kinds of roofs. These are of two kinds, as here exhibited, and are either to be placed across the ridge of the roof, or on its side. The latter may be placed on, as shown in this figure, by simply wetting the part intended to adhere with a little water, and pressing it on so as to drive out the air from between the pieces. Fig. 7 may thus be united to Fig. 5 or 8. This will be sufficient to make them adhere for all ordinary purposes. Nothing more adhesive should be used, such as paste or gum, however weak, as it would be difficult, if not impossible, to sever them afterwards. This subject would be thus expressed by a plan:



The line *BC* is intended for the ridge of the roof, and to show how that is placed on the cube, which is indicated by the numeral *I*; if more than one cube was intended to be placed underneath, they would be thus indicated 1½, 2, 2½, and so on. *D* shows the place and plan of the window, and *C* those of the chimneys. There are also in this box two kinds of buttresses, for which the chimneys will serve, if placed on the square ends.

I come now to the more complicated combinations.

FIG. 21.

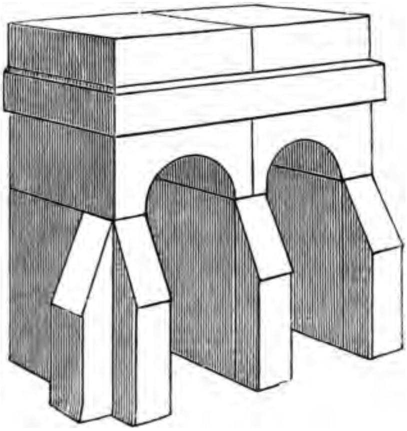
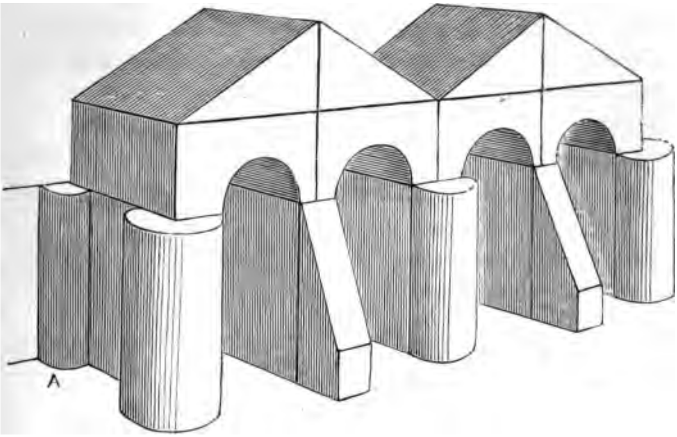


Fig. 21 is composed of three-quarter-cubes placed as in Fig. 17, surmounted by two arches, and these again by one quarter-cube and two one-eighth-cubes. These are made to hang over in the form of a cornice, and on these are superimposed two half-cubes. To the three-quarter-cubes are attached buttresses, and the whole assumes the form of a double triumphal arch.

FIG. 22.

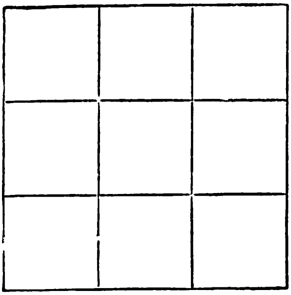


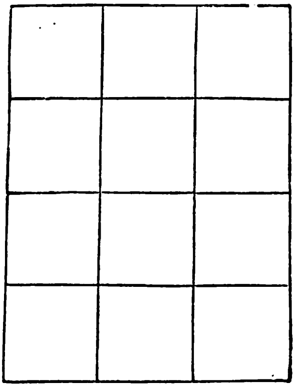
This figure is composed like the preceding; but with four arches. These are surmounted by four half-gables so arranged as here to form two large flat gables, in shape analogous to the Greek or Roman pediment.

The two outer angles are flanked by three-quarter-cylinders like Fig. 10. Between these, in the centre division, is a half-cylinder, and in the centre between each pair of arches are buttresses. In the angle at *A* is a quarter-cylinder, Fig. 11.

These latter examples, together with the preceding, serve to show in some degree, and it can only be in a very limited one, the uses to which each model may be applied. It remains now to give an example of a more comprehensive and picturesque combination.

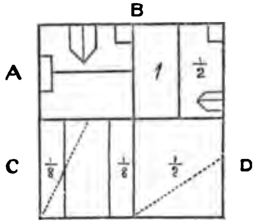
Before this can be done, it will be necessary to observe that the first step towards a picturesque assemblage is to have a varied ground plan, particularly if the combination of the superstructure is intended to embrace that variety which is an indispensable element of the picturesque. Hence, then, the cubes must not be congregated as in the following examples,





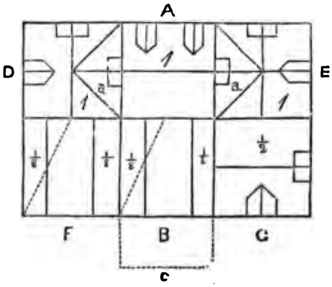
where in one they together make a perfect square, and in the other a parallelogram—that is to say, in the numbers here represented; but when combined, as in the manner indicated by the following Figures, although the outline of *each resembles* these, yet the number of cubes, forming the ground plan, being less, a picturesque result may be obtained, and examples of perfectly natural forms such as would be worthy of study.

PLAN 1.



To build up from Plan 1, take the first division, *A*, which is exactly like Fig. 20, page 19. *B* is composed of 1 cube and a ½, with the roof differently placed on them; the division *D* possesses a roof like *C*, whose kind and position are indicated by the dotted line, and it is placed on a half-cube like Fig. 2, page 9.

PLAN 2.

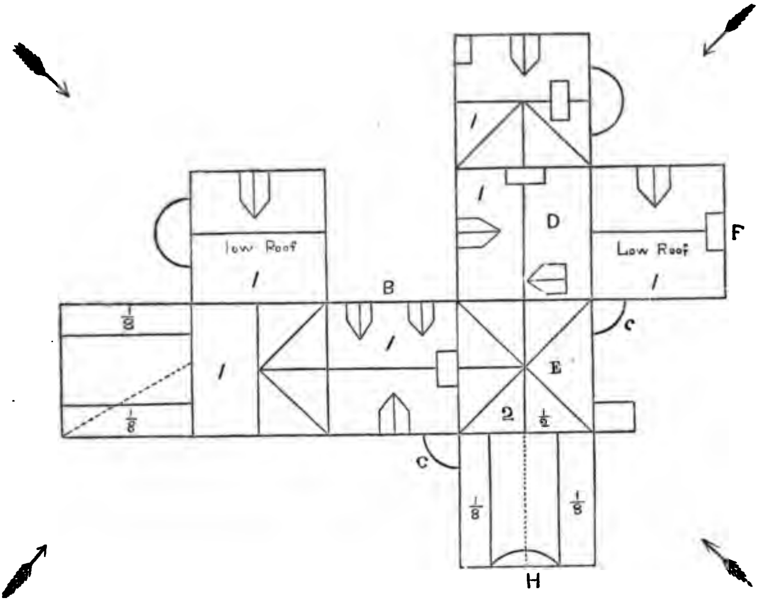


Plan 2 must be proceeded with in like manner, part by part, the divisions *F* and *B*, are repetitions of *C* in Plan 1; the other divisions, *A*, *D*, *E*, *G*, are sufficiently indicated by the lines and figures, the only additions requiring any explanations are *a a*—these are pieces like Fig. 7, page 11, and are placed so as to continue the ridge of the roof of the division *A*.

Although the previous examples of plans may have been sufficient, yet it will be desirable to explain what is intended by these two; because if they be properly comprehended, there will be little difficulty in interpreting those which follow.

When such forms as these are obtained, which are tolerably picturesque, they may be made much more so, and changed to great variety, by merely changing the place and position of any division; for instance, by placing *F* where *E* is, and turning it in another direction, and placing *E* by the side of *G* or *D* as indicated by the place of that letter. Again, by pushing the two divisions *A* and *B* bodily forward, until the line at *B* advances as far as *C*, or in pushing the divisions *D* and *F*, or *E* and *G*, in like manner, or in thrusting the three divisions *D*, *A*, and *E*, either to the right or to the left. Another facile mode of procuring a change is merely to alter the position of the roofs. Every change made according to these instructions, furnishes a new subject. It will be observed that this method of removing the divisions changes at once the ground plan, and immediately the combinations become more picturesque; to what degree, will be best understood by reference to Plan 3, on the next page.

PLAN 3.



However this plan may appear more complicated than the preceding, yet if they be understood this will be easily set up, and together with the four following views from it, taken from the stations indicated by the arrows, will prove thoroughly what I have before said respecting one subject affording several views; and as doors and mural windows have been sketched in, further proof is given, if any were wanting, how entirely and consistently the Models may be made to assume the shape of architectural structures.

Reference to these will aid in setting up the models, as they should be, in order to understand more completely the subjects which are here given from them, and to witness the several different forms they assume when seen from other points of view, higher or lower.

In addition to the previous instructions, it will be necessary to explain that the division *H* has on the two pieces of $\frac{1}{8}$ cube, an arch like Fig. 9, page 13, indicated by the small semi-circle at *H*; these together are surmounted by a low gable, leaving the ridge of the roof in the direction indicated by the dotted line. The 2½ cubes which form the division *E*, are surmounted by a pyramid like Fig. 8, page 12, which is indicated by the cross lines thus × ; *c c* are two quarter-cylinders, like Fig. 11, page 13, and placed as in Fig. 13.

I add one more plan by way of additional evidence of what may be gained by changing a few divisions, and by producing more variety to show the improved pictorial result thence obtained. Of course this can only be understood and appreciated when the whole structure has been raised. A comparison of the Plans 3 and 4, will show which divisions have been removed, turned, or have received additions; as well as those which remain in both unchanged, as *A*, *B*, *E*. Another portion, like Fig. 22, has been annexed, to increase the variety of this plan, and additional picturesqueness will be found to be the result of the combination.

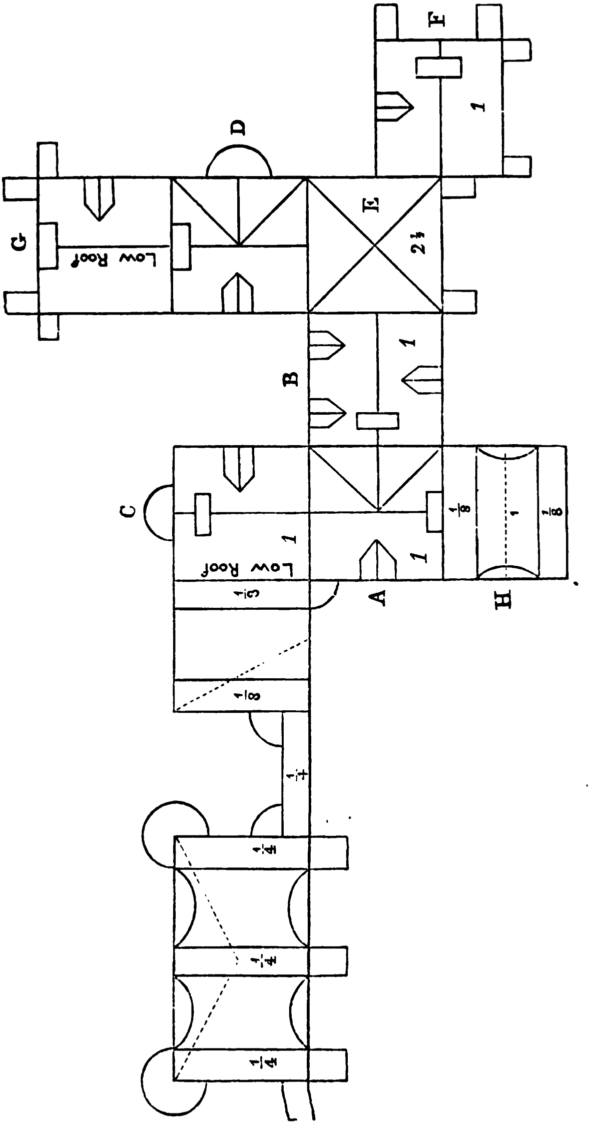
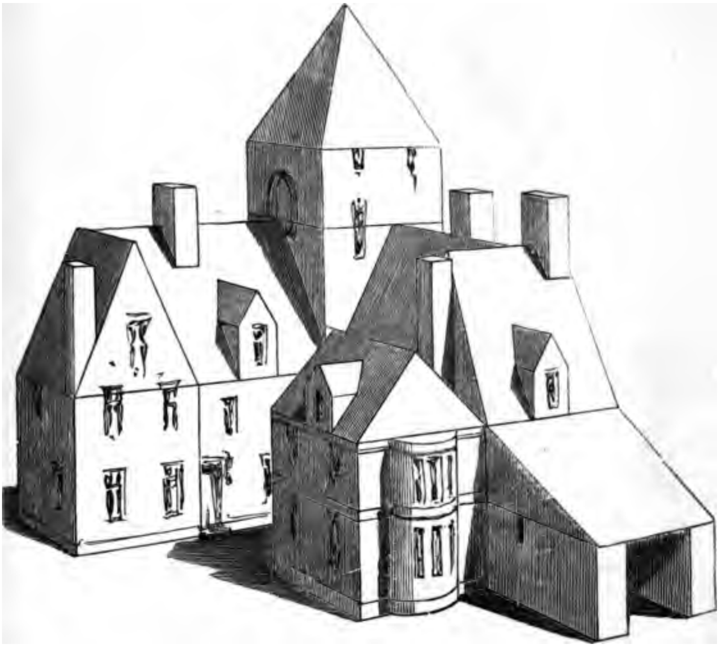
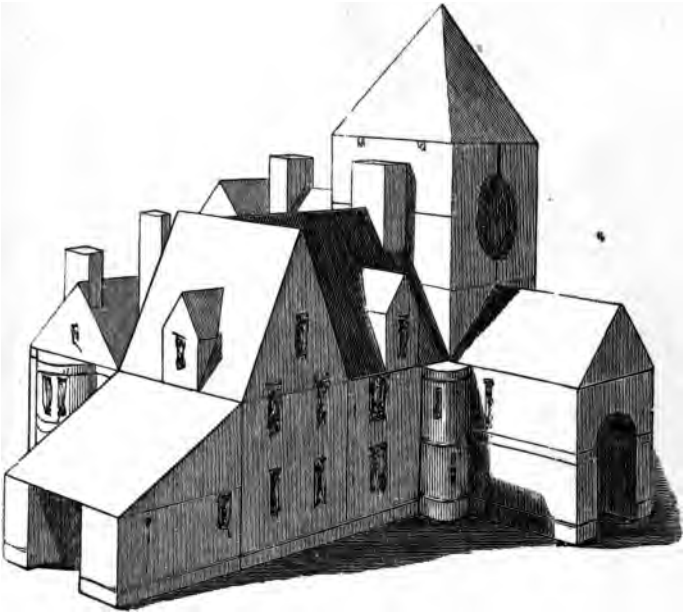

F
1
D
G
Low Roof
E
2½
B
1
C
1
Low Roof
1
A
1/8
1
1/8
H
1/3
1/8
1/4
1/4
1/4
1/4

PLATE 1.



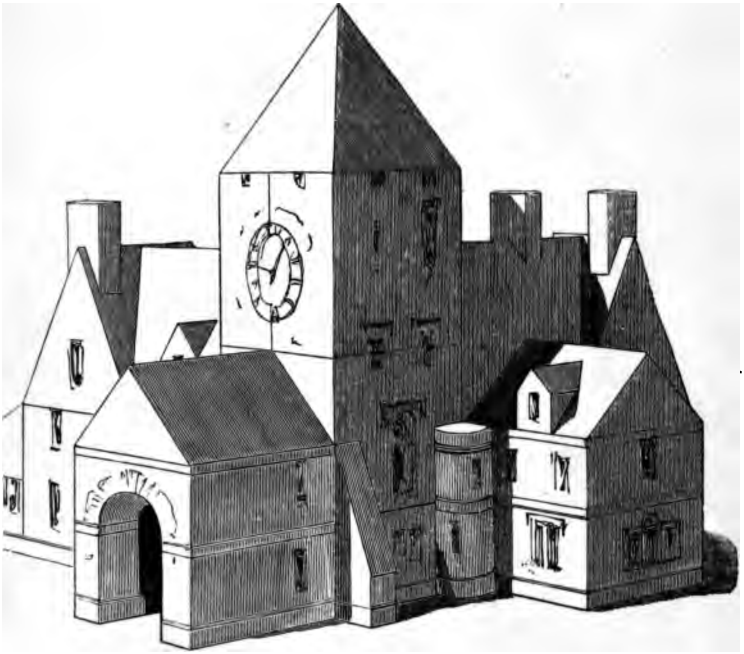
VIEW TAKEN FROM STATION 1.

PLATE 2.



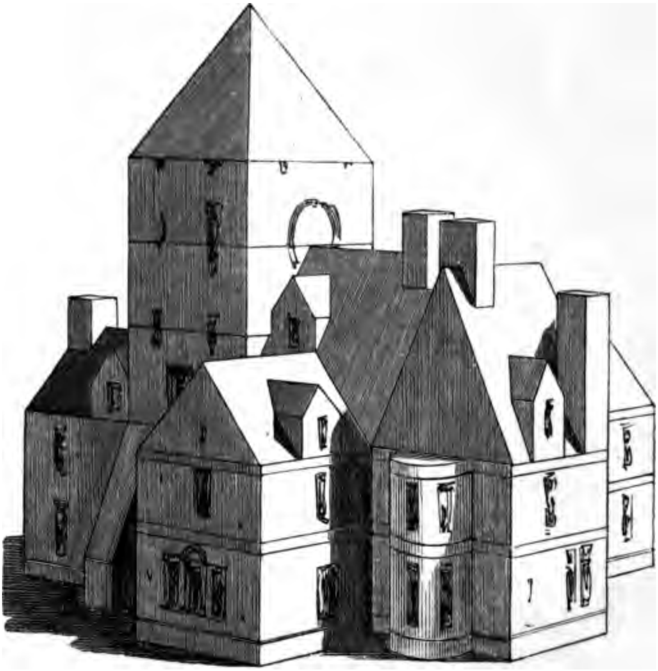
VIEW TAKEN FROM STATION 2.

PLATE 3.



VIEW TAKEN FROM STATION 3.

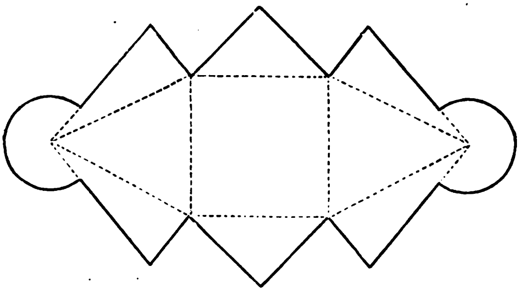
PLATE 4.

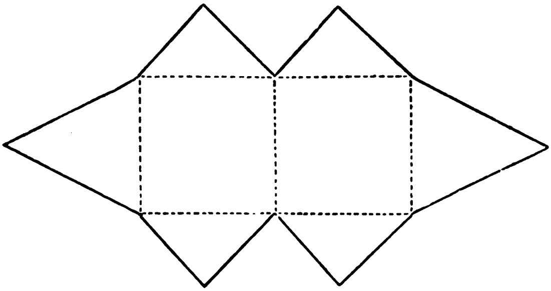


VIEW TAKEN FROM STATION 4.

Enough has been done to show that, in order to obtain any amount of variety, it is not always necessary to dismember any subject; changing the places of the divisions of any combination, the kind of roofs, the position of their ridges, the places of the roof, windows, and chimneys, are enough to produce a large amount. It would be useless, also, to add further examples; what has been shown is enough to make the combination of the Models perfectly comprehended, and to serve as a sufficient initiation for combining them as fancy or necessity may dictate. When any favourable structure may have been raised, it is only necessary to preserve a ground plan of it, such as Plan 4, in order to raise it again at any time when demanded; but for such a record, it would be necessary to make as many drawings as have been given of Plan 3, or submit to the loss of many excellent subjects often accidentally obtained.

The following two plans are given as examples of the way in which the Models may be combined, so as to produce a series of angles, not always at right angles with each other; They somewhat resemble the plans of fortification, and are such as require to be placed actually before the eye of a pupil, in order to give a better idea of the complicated forms such angles assume when seen from different points of view; and when the visual rays are inclined to their planes.





To say more here, would be to intercept or anticipate the instructions of the teacher, and not to add to their usefulness. Whatever more, he or others, may desire concerning the utility of the Models in furthering a knowledge of art, will be found in the "Guide and Companion" to the "Lessons on Art," which they have been intended to accompany, as important if not indispensable coadjutors.

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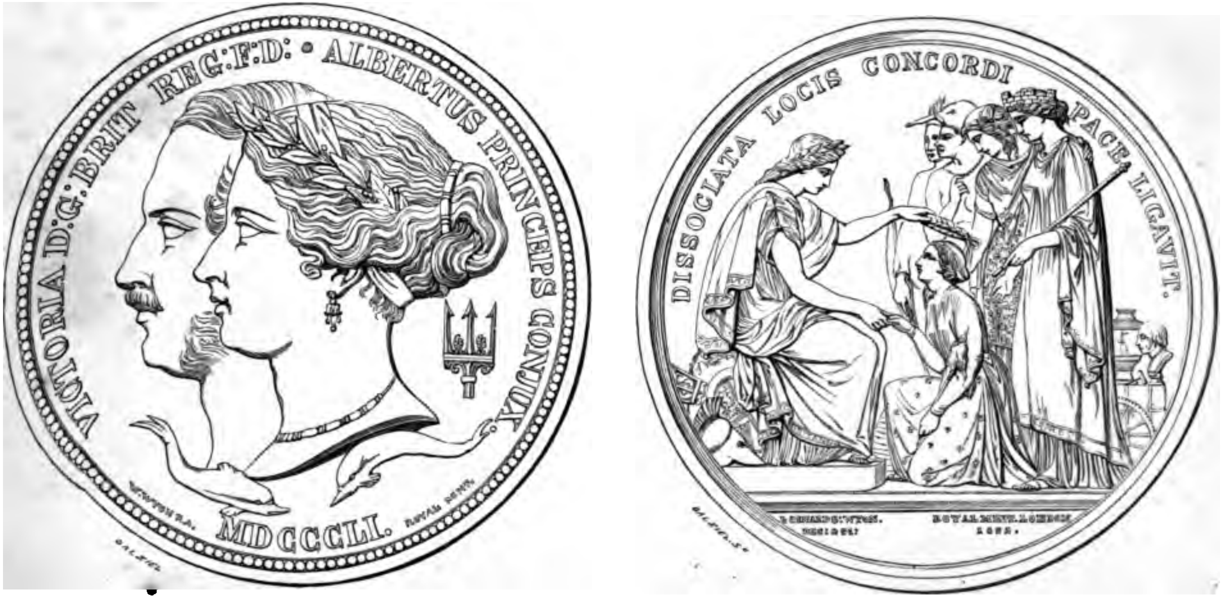
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